

Remarks

Claims 1-42 are in the application. Claims 1 and 23 are in independent form.

The references cited in the information disclosure statement submitted 9/9/99 were not considered because each publication must be identified by the relevant pages of the publication and the date. Applicants note that the reference titled "Visual Insights Advizor" was undated and that the reference "Windiff: A Graphical Difference Program" was published electronically and had no page numbers. Applicants submit that refusal to consider such references cannot be proper if the references simply do not include the desired information. Applicants request, therefore, that the cited references be considered and entered into the record of the application.

The Examiner has required that Fig. 2 be revised to include a "prior art" notation. Attached hereto is a revised formal Fig. 2 including a "prior art" notation as required by the Examiner.

Claims 1-3, 7-12, 14-26, 30-35, and 37-42 are rejected under 35 U.S.C. 103(a) for obviousness over Lokuge (US Pat. No. 6,252,597 B1) in view of Rao et al. (Rao, US Pat. No. 6,085,202).

With regard to independent claim 1, the Examiner cites Lokuge as disclosing a threaded information visualization system, but which does not disclose "generally one dimensional entry lines that each represent one of the threaded information entries". Rao is cited as disclosing one-dimensional array or row (entry lines). The Examiner concludes that it would have been obvious to have modified "Rao into Lokuge to provide one-dimensional rows in a hierarchical arrangement on a graphical display in order to effectively view selected regions of interest in a graphical data representation environment." Applicants respond as follows.

Claim 1 has been amended to correct a minor typographical error. Claim 1 recites a graphical representation of threaded information in which the

graphical representation includes an indented threading arrangement of parallel, generally one-dimensional entry lines that each represent one of the threaded information entries. Such a graphical representation results in a unique high-density visualization for threaded information. Independent claim 23 recites software for providing such a visualization. Applicants submit that that claims 1 and 23 are patentably distinct from the cited references for the following reasons.

Lokuge is directed to a graphical user interface (GUI) having a scalable display for showing information, commands, and/or file structures substantially in their entirety. (Lokuge, col. 5, lines 23-26.) The display of Lokuge is scalable in that different features may be rendered in different sizes or scales, but always as recognizable text or pictorial icons. In the threaded information implementation of Figs. 12-16, the indentation of the threaded text information is scaled. In the implementation of Figs. 6 and 7 the sizes of the text or icons are scaled. Lokuge represents a conventional, prior art understanding of threaded information as being of low density. As a consequence, Lokuge specifically renders threaded information in its “entirety” only as recognizable text or pictorial icons.

Rao describes “information presentation techniques specifically for the domain of information structured in an n-dimensional (nD) data array that is suitable for display in a table or spreadsheet image structure.” (Rao, col. 5, lines 61–66, emphasis added.) This use of the information presentation format of Rao “specifically” for array data structures (e.g., 2-dimensional or n-dimensional tables) is emphasized at col. 16, lines 27-30, referring to the array data structure of Fig. 2. As examples, Figs. 14 and 15 of Rao show respective table images 60 and 70 that represent “7429 cells” corresponding to baseball statistics for all major league baseball players from 1986 and 1987.

Prior art references must each be considered as a whole. It is improper to pick and choose individual features from references without regard to their teachings as a whole. Applicants submit that Lokuge and Rao, when each properly considered as a whole, do not teach or suggest the subject matter of claims 1 and 23.

Rao is explicitly directed to providing display formats for specific types of information, namely, N-dimensional data arrays. Lokuge employs scaling so that conventional text or pictorial icons arranged as threaded information can be rendered in their entirety. Lokuge is explicitly directed to preserving all of the text, etc. of threaded information so that it can be rendered in its entirety. A result of this focus on rendering information in its entirety is that Lokuge would lead one skilled in the art away from substituting conventional text information with "one-dimensional entry lines" in a threaded information display.

Moreover, Lokuge shows no appreciation of the potential for a high-density visualization for threaded information utilizing one-dimensional entry lines, and Rao is explicitly directed to rendering information from N-dimensional data arrays. Lokuge and Rao are directed to displaying entirely different types of data – low density text sequences for Lokuge and massive multi-dimensional data arrays for Rao.

An aspect of the invention represented by claims 1 and 23 is the appreciation that threaded information can be of such a density that the use of text to represent individual lines imposes an unnecessary constraint on the rendering of threaded information. Lokuge clearly does not appreciate these constraints, and Rao is directed to displaying information from a specific data structure (i.e., N-dimensional data arrays). As a consequence, the cited references fail to provide a motivation or suggestion to modify the low-density text-based display format of Lokuge with the display format of Rao adapted specifically for massive data arrays (e.g., 7429 cells of baseball information).

Accordingly, applicants submit that claims 1 and 23 are patentably distinct from the cited references and request that the rejection be withdrawn. Applicants submit that the remaining claims in the application, which depend from claims 1 and 23, are also allowable as depending from patentably distinct claims. In addition, applicants submit that various dependent claims are further allowable for the flowing reasons.

With regard to claims 2 and 25, the Examiner states that Rao discloses:

threaded information entries include plural fields of entry information and in which the entry lines are rendered with variations corresponding to information in one or more of the predefined fields of entry information (on col. 12, line 50 - col.13, line 5: teaches mapping entries with cell regions).

The Examiner concludes that it would have been obvious to modify Rao into Lokuge to provide "a way to map (associate) entries with a plurality of cell regions (fields) in order to enhance the display of images directly representing an item of data in the data structure." Applicants traverse this rejection for the following reasons.

Rao makes no reference to or suggestion of threaded information entries. Rao is directly explicitly and specifically to n-dimensional data arrays. In concluding the obviousness underlying the rejection, the Examiner appears to assert that the cited references teach or suggest adapting various cells in an arbitrarily large n-dimensional data array to the threaded information display of Lokuge. Applicants submit that there is no teaching or suggestion to apply the large data structures of Rao to the low-density information displays of Lokuge. Lokuge describes simple lists of information objects. There is no motivation in either reference to apply n-dimensional data arrays to such simple lists. Applicants submit, therefore, that the rejection of claims 2 and 25 is improper and request that the rejection be withdrawn.

Claims 3-13 depend from claim 2, and claims 26-36 depend from claim 25. Applicants submit that claims 3-13 and 26-36 are allowable as dependents of patentably distinct claims 2 and 25.

With regard to claims 3 and 26, the Examiner states that Lokuge discloses that "the entry lines are rendered with colors corresponding to information in one or more of the predefined fields of entry information (Lokuge on col. 7, lines 35-48: teaches colors corresponding to categories)." Claims 3 and 26 have been amended to clarify that "individual entry lines are rendered with colors corresponding to information in one or more of the predefined fields of the entry information for the individual threaded information entries." This subject matter is

described in the application beginning at page 9, line 29:

In various implementations, entry lines 122 may be colored according to selected information in or related to the underlying posts, messages, etc. represented by lines 122. In the context of a newsgroup, for example, entry lines 122 may be colored according to the ages of the posts represented by entry lines 122, according to the frequencies with which the authors of the posts (sometimes called posters) contribute to the group, etc. Similarly, entry lines 122 may alternatively or additionally have lengths or positions according to other selected information, as described below in greater detail.

Applicants submit that the cited references do not teach or suggest the subject matter of amended claims 3 and 26. In particular, as indicated in the passage cited by the Examiner, it is the “expansive locations” where categories of information objects are displayed that are differentiated by color. Lokuge makes no teaching or suggestion as to employing colors to differentiate individual entries in a threaded information visualization. Applicants request, therefore, that the rejection of claims 3 and 26 be withdrawn.

With regard to claims 7, 9, 30, and 32, the Examiner states that Lokuge discloses that “the entry lines are rendered with lengths corresponding to information in one or more of the predefined fields of entry information (on col. 8, lines 26-34: teaches text or symbols showing in the expansive locations may be resized).” Applicants traverse this rejection for the following reasons.

In the passage cited by the Examiner, and throughout Lokuge, it is stated that “Any text or symbols showing in the expansive locations may be proportionately resized to the dimensions of the expansive location.” In other words, the text or symbols are resized to fit the available space in an area of a display screen. Applicants submit that there is no teaching or suggestion in this “fit-to-screen-size” operation of Lokuge to render entry lines with lengths “corresponding to information in one or more of the predefined fields of entry information.” Lokuge sizes according to available screen space, and the claims use line length to represent information in a data field. Applicants submit, therefore, that the cited references do not teach or suggest all elements recited in claims 7, 9, 30, and 32 and request that the rejection be withdrawn.

Likewise, claims 8, 11, 12, 31, and 34 are directed to rendering entry lines at positions "corresponding to information in one or more of the predefined fields of entry information." The "scalable" display of Lokuge is directed to fitting information objects within the available display screen space. Applicants submit that there is no teaching or suggestion in this "fit-to-screen-size" operation of Lokuge to render entry lines at positions "corresponding to information in one or more of the predefined fields of entry information." Lokuge positions according to available screen space, and the claims use positioning to represent information in a data field. Applicants submit, therefore, that the cited references do not teach or suggest all elements recited in claims 8, 11, 12, 31, and 34 and request that the rejection be withdrawn.

Claims 14, 21, 39, and 41 recite that "the threaded information includes threads that begin with top-level information entries, the graphical representation further comprising text information only about top-level information entries." The Examiner states that Lokuge discloses this feature at col. 6, lines 8-15: "teaches top tier categories (entries)." Applicants traverse this rejection for the following reasons.

Applicants submit that the rejections of claims 14, 21, 39, and 41 are improper for failure to include in the cited art each and every feature recited in the claim. Although the passage cited by the Examiner to top tier categories, there is no teaching or suggestion of providing a threaded information visualization with text information only about top-level information entries. Rather, Lokuge is directed to a display that strives to provide text information for every level of threaded information. Applicants submit, therefore, that the cited references do not teach or suggest all elements recited in claims 14, 21, 39, and 41 and request that the rejection be withdrawn.

Claims 4-6, 13, 27-29, and 36 are rejected under 35 U.S.C. 103(a) for obviousness over Lokuge and Rao, and further in view of Durham et al. (US Pat. No. 5,832,502). Durham et al. describes an email system display that renders for each email message the name of a correspondent and the date and time of the

correspondence. The name, date, and time are rendered as text.

Claims 4, 6, 13, 27, 29, and 36 have been amended to recite that the indicated time or originator information are indicated with the one-dimensional entry line. Claims 5 and 28 include these features by dependency. Applicants submit that the cited references Lokuge and Durham et al. are directed to providing threaded information in text formats, and distinctly not as one-dimensional entry lines. Applicants request, therefore, that the rejection of claims 4-6, 13, 27-29, and 36 be withdrawn.

Applicants believe the application is in condition for allowance and respectfully request the same.

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Respectfully Submitted,



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